Acreage Living

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In This Issue

Acreage Living is published monthly. Please share it with your acreage neighbors. Call your local ISU Extension Office for more information or contact an ISU Extension staff member listed below to suggest topics for future articles.

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Can I Grow Grapes?

By Paul Domoto, ISU Professor and Extension Fruit Specialist

Since 2000, interest in growing grapes in Iowa and making wine has been very high. Grape acreage increased from about 30 acres to more than 850 acres, and wineries increased from 11 to 70. With this rapid increase in the number of wineries, grape production is lagging behind demand. Before investing in such an enterprise, there are a number of factors you should consider to determine if a vineyard is right for you. These factors include available markets, site and soil characteristics, establishment and production costs, and available labor. This article covers site and soil requirements for a successful vineyard.

Site considerations

Site suitability for growing grapes is related to minimum winter temperatures, frequency of spring and fall frosts, length of the growing season, and annual precipitation. Typically it gets colder and the growing season is shorter in northern Iowa than in southern Iowa. To compensate for these differences, northern growers have to select hardier cultivars (cultivated varieties) with shorter growing season requirements than growers in southern regions.

Even within a localized area, the minimum winter temperature, frequency of spring and fall frosts, and length of the growing season are very site specific and are governed by the elevation of the site compared to the surrounding area. This is because the coldest temperatures occur under radiation freeze conditions when there are no clouds and very little or no air movement. Under such conditions, cold air settles into low-lying areas. An elevated site will be warmer in the winter, less prone to late spring and early fall frosts, and have a longer growing season better suited for grapes. A general rule would be to locate a vineyard at least 50 feet elevation above a valley floor.

continued on next page

continued from previous page

Annual precipitation across Iowa ranges from about 36 inches in the southeast to 25 inches in the northwest. Grapevines can develop a very extensive root system. Generally Iowa's rainfall is adequate for growing grapes provided the soil has adequate moisture holding capacity and sufficient depth to provide a good soil moisture reserve.

Soil considerations

An ideal vineyard soil has good internal drainage yet sufficient moisture holding capacity, a pH in the 6.0 to 6.5 range, and organic matter content in the 2 to 3% range. Such soils are rare in Iowa, but with some modification and adjusting of cultural practices, the parameters for these soil properties can be expanded. The ISU Extension Iowa Soil & Land Use site http://extension.agron.iastate.edu/soils/interpretations.html has a Soil Interpretations resource that lists soils in each county suitable for vineyards based on slope, organic matter content, soil pH, internal drainage, and permeability.

Soils with internal drainage classified as "well-drained" are ideally suited for growing grapes. These soils provide good aeration for root development and have adequate soil moisture holding capacity to sustain grapevines through intermittent periods of drought. Soils classified as "moderately well drained" are suitable for grapes, but may require some modification to improve drainage. Soils classified

as "somewhat poorly drained" will require modification to improve drainage. If the soil is "somewhat excessively drained" you should consider an irrigation system to supplement the moisture supply.

Soils with a pH below 6.0 can be limed to bring up the pH. However, many Iowa soils are excessively high in magnesium (Mg) which can interfere with the uptake of potassium (K). Therefore, avoid using dolomitic lime to raise the soil pH. Soils with a pH above 6.8 can be acidified with elemental sulfur, but when the pH is above 7.4 or 7.5, it may not be economically justifiable.

For each percent organic matter, a typical Iowa soil has the capacity to release about 20 pounds of nitrogen (N) per acre per year. Grapevines do not have a high demand for N, but if N is available, they will continue to grow as long as temperatures are warm enough to promote growth. Because of this characteristic, they tend to be less winter hardy on high organic soils. When the organic matter content is in the 3 to 5% range, you can compensate for the N release by reducing fertilizer N applications and growing early maturing, very hardy cultivars. When the organic matter content is more than 5%, chances for establishing a successful vineyard greatly decline.

Before establishing a vineyard, it is important to test the soil to determine if the organic matter content is suitable, if the soil pH needs to be adjusted, and if the soil needs to be amended to optimize the phosphorous (P) or K content. This is very important because calcium (Ca) in lime, P, and K move slowly in the soil; correcting a deficiency of any of these nutrients after planting grapes is extremely difficult.

Test the soil for Mg to determine if it may interfere with uptake of K, and for zinc (Zn) because Zn is low in many Iowa soils. Because test results on the top 6 to 8 inches often reflect past fertilizer practices, submit separate soil samples from 0-6 and 6-12 inch depths. Forms to submit soil samples to the ISU Soil and Plant Analysis Laboratory can be downloaded at http://www.agron.iastate.edu/soiltesting/. Soil sample bags are available from your county Extension office.

Summary

Because vineyards are expensive to establish, it is critical that your site and soil conditions are suitable for grapes and that you have selected grape cultivars adapted to your conditions. If your site and soil conditions do not meet the criteria described, chances for success will be greatly reduced. For more information, go to the ISU Viticulture site http://viticulture.hort.iastate.edu/home.html .

Mower Maintenance Important on Larger Acreages

By Mark Hanna, ISU Extension Ag Engineer

Most acreage owners don't enjoy spending excessive time with mowing operations. Staying current with routine maintenance can help avoid unscheduled equipment repairs or down time and maximize fuel economy.

Take time to be familiar with maintenance and safety procedures listed in the operator's manual to minimize time required for maintenance. Consider making your own maintenance checklist based on this information if the manual doesn't already have one. Putting this checklist on a spreadsheet has the added advantage of allowing you to record when maintenance was done. Equipment differs, but following are some important maintenance check points for larger mowers:

Engine

- Maintain and replace filters (air, oil, fuel).
- Fluids: change oil, check coolant if liquid-cooled and replace as needed. Change filters and fluids at no longer than manufacturer's suggested time intervals for best fuel economy and to increase engine reliability. Replace oil using the viscosity suggested by the manufacturer.
- Clean exterior with compressed air, particularly around air intake and to avoid over heating.
- Clean battery terminals.

Power transmission

- Lubricate axle and blade spindles, steering, clutch, and brake linkage. Know location and lubrication interval for all grease zerks.
- Check tension and wear on belts. Remove debris.

Cutting parts

- Sharpen blades at regular intervals for best fuel economy and grass health.
- Remove grass and clean out underside of mower deck after each use to prolong deck life.

General maintenance

- Check tire pressure and take time to inspect for loose bolts, shields, hose clamps or other parts.

Safety

- Remove yard debris that might be thrown or dull the blade.
- Stay off slopes too steep for operation. Rider mowers and tractors should move up and down slopes. Walk-behind mowers should move across slopes.
- Wear appropriate attire. Use shoes with non-slip soles.
- Keep all guards and shields in place.
- Disconnect spark plug before maintenance to avoid accidental starting.

Mowers used for heavy-duty work on acreages typically are worked longer hours with the engine operating at prolonged high temperature and additional stress on power trains and mower attachments. Allowing maintenance time during routine mowing operations saves fuel, expense, and time in the long run.

Pesticide Applications in the Neighborhood

By Betsy Buffington, ISU Extension Pest Management and the Environment Specialist

Warmer weather is arriving and the countryside is beginning to green up. Along with green grass and spring flowers, pests such as weeds and insects are also becoming visible. Farmers must make a decision on how to control pests that appear in their fields. Some pests do not need to be controlled because they will not cause enough damage to reduce crop yields, while others need to be controlled immediately or they may cause significant crop damage.

The choice to use pesticides

Pesticides are used to sustain food production at high levels by protecting crops from pests. During May and June, nearly all of the pesticides applied to Iowa's corn and soybean fields are herbicides. These products are

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used to control weeds that are present in every farm field, and if left uncontrolled would dramatically reduce crop yields. Later in the growing season, many fields are sprayed with insecticides or fungicides to control insects and diseases. The amount of spraying varies widely from year to year, depending upon the severity of outbreaks.

Neither pesticides nor nonchemical alternatives can result in the elimination of pests in all situations. Nonchemical alternatives (plant variety differences, planting dates, sanitation, and cultivation) lessen the need to use pesticides, but they cannot totally eliminate it. Many farmers use integrated pest management (IPM), a comprehensive approach to pest control that combines both nonchemical and chemical tactics. Pesticides are applied when there is an economic return – when the cost of the pesticide application is less than or equal to the amount of crop loss caused by the pest. Applications of pesticides may be made on the ground using tractors or, later in the season, from the air using spray planes.

What can I do?

If you are concerned about the use of pesticides near your home, contact the farmers in your area. They are usually happy to talk about what they are doing and why. You can ask them about the chemical they will be spraying, its characteristics, and why the treatment is important. Speak to your neighboring farmers in a friendly, tactful way and explain your concerns about the impact their pesticide use may have on you, your garden, or your pets. Try to negotiate a solution that satisfies both of you.

If you raise sensitive crops (such as organic production, vineyards, orchards, or fruits and vegetables) or are a beekeeper, you can register with the Iowa Department of Agriculture and Land Stewardship to be in the Sensitive Crops and Apiaries Directory. The directory gives farmers the locations of crops that are most susceptible to damage from pesticide drift. To register for the online registry, fill out the producer registration form found on www.iowaagriculture.gov.

What is pesticide drift?

Drift can be defined as the airborne movement of pesticides to nontarget areas. Minimal pesticide drift can occur even when a farmer is following correct application procedures and label directions.

What do I do if I have been exposed to pesticide drift?

If you believe you have been exposed to pesticide spray drift and have health-related questions, contact your physician or local poison control center (1-800-222-1222) for assistance. If you are showing symptoms of pesticide poisoning, call **911** immediately.

If you have a concern about a possible pesticide misapplication, contact the Iowa Department of Agriculture and Land Stewardship at 515-281-8591.

Whom can I contact for more information?

If you are interested in learning more about pesticides, contact your local county extension office (http://www.extension.iastate.edu/ouroffices.htm) or the Pest Management and the Environment program at Iowa State University (http://www.extension.iastate.edu/pme). For additional information on pesticides and pesticide exposure, contact the **National Pesticide Information Center** (NPIC) at 1-800-858-7378 or http://npic.orst.edu/.